

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A charging device comprising:

a charge roller adjoining or contacting a surface of a photoconductive element;

a DC voltage source configured to output a DC voltage;

an AC voltage source configured to output an AC voltage;

voltage applying means for superposing the DC voltage and the AC voltage and
applying a resulting superposed voltage to said charge roller; and

waveform control means for causing said AC voltage source to generate the AC
voltage having a waveform pattern of ~~particular~~ at least one of white noise or pink noise and
a frequency lying in a preselected range.

Claim 2 (Original): The device as claimed in claim 1, wherein said waveform control
means causes said AC voltage source to generate the AC voltage having a waveform pattern
of white noise and having the frequency of between 500 Hz and 4,000 Hz.

Claim 3 (Currently Amended): The device as claimed in claim 2, further comprising
a DSP (Digital Signal Processor) configured to generate the waveform pattern of ~~particular~~ at
least one of white noise or pink noise, wherein said waveform control means causes said AC
voltage source to output the AC voltage having the waveform pattern output from said DSP.

Claim 4 (Currently Amended): The device as claimed in claim 2, further comprising
a semiconductor memory storing the waveform pattern of ~~particular~~ at least one of white
noise or pink noise, wherein said waveform control means causes said AC voltage source to
generate the AC voltage having said waveform pattern stored in said semiconductor memory.

Claim 5 (Original): The device as claimed in claim 4, wherein said semiconductor memory stores a plurality of waveform patterns different in frequency from each other, and said waveform control means causes said AC voltage source to selectively generate the AC voltage having any one of the waveform patterns stored in said semiconductor memory.

Claim 6 (Currently Amended): The device as claimed in claim 2, wherein said waveform control means causes said AC voltage source to generate the AC voltage digitally reproduced by sampling the waveform pattern of ~~particular~~ at least one of white noise or pink noise at a sampling frequency of 6 kHz or above.

Claim 7 (Original): The device as claimed in claim 1, wherein said waveform control means causes said AC voltage source to generate the AC voltage having a waveform pattern of pink noise and a frequency of between 500 Hz and 4,000 Hz.

Claim 8 (Currently Amended): The device as claimed in claim 7, further comprising a DSP configured to generate the waveform pattern of ~~particular~~ at least one of white noise or pink noise, wherein said waveform control means causes said AC voltage source to output the AC voltage having the waveform pattern output from said DSP.

Claim 9 (Currently Amended): The device as claimed in claim 7, further comprising a semiconductor memory storing the waveform pattern of ~~particular~~ at least one of white noise or pink noise, wherein said waveform control means causes said AC voltage source to generate the AC voltage having said waveform pattern stored in said semiconductor memory.

Claim 10 (Original): The device as claimed in claim 9, wherein said semiconductor memory stores a plurality of waveform patterns different in frequency from each other, and said waveform control means causes said AC voltage source to selectively generate the AC voltage having any one of the waveform patterns stored in said semiconductor memory.

Claim 11 (Currently Amended): The device as claimed in claim 7, wherein said waveform control means causes said AC voltage source to generate the AC voltage digitally reproduced by sampling the waveform pattern of ~~particular~~ at least one of white noise or pink noise at a sampling frequency of 6 kHz or above.

Claim 12 (Currently Amended): The device as claimed in claim 1, further comprising a DSP configured to generate the waveform pattern of ~~particular~~ at least one of white noise or pink noise, wherein said waveform control means causes said AC voltage source to output the AC voltage having the waveform pattern output from said DSP.

Claim 13 (Currently Amended): The device as claimed in claim 12, wherein said waveform control means causes said AC voltage source to generate the AC voltage digitally reproduced by sampling the waveform pattern of ~~particular~~ at least one of white noise or pink noise at a sampling frequency of 6 kHz or above.

Claim 14 (Currently Amended): The device as claimed in claim 1, further comprising a semiconductor memory storing the waveform pattern of ~~particular~~ at least one of white noise or pink noise, wherein said waveform control means causes said AC voltage

source to generate the AC voltage having said waveform pattern stored in said semiconductor memory.

Claim 15 (Original): The device as claimed in claim 14, wherein said semiconductor memory stores a plurality of waveform patterns different in frequency from each other, and said waveform control means causes said AC voltage source to selectively generate the AC voltage having any one of the waveform patterns stored in said semiconductor memory.

Claim 16 (Currently Amended): The device as claimed in claim 14, wherein said waveform control means causes said AC voltage source to generate the AC voltage digitally reproduced by sampling the waveform pattern of ~~particular~~ at least one of white noise or pink noise at a sampling frequency of 6 kHz or above.

Claim 17 (Currently Amended): A process cartridge comprising:

- a photoconductive element;
- a cartridge case by which said photoconductive element is rotatably supported;
- a charging device disposed in said cartridge case and configured to establish a potential difference between said charging device and said photoconductive element for thereby uniformly charging a surface of said photoconductive ~~drum~~ element; and
- a developing device disposed in said cartridge case and configured to feed toner to the surface of said photoconductive element;

said charging device comprising:

- a charge roller adjoining or contacting the surface of said photoconductive element;
- a DC voltage source configured to output a DC voltage;

an AC voltage source configured to output an AC voltage;
voltage applying means for superposing the DC voltage and the AC voltage and
applying a resulting superposed voltage to said charge roller; and
waveform control means for causing said AC voltage source to generate the AC
voltage having a waveform pattern of ~~particular~~ at least one of white noise or pink noise and
a frequency lying in a preselected range.

Claim 18 (Currently Amended): An image forming apparatus comprising:

a process cartridge comprising a photoconductive element, a cartridge case by which
said photoconductive element is rotatably supported, a charging device disposed in said
cartridge case and configured to establish a potential difference between said charging device
and said photoconductive element for thereby uniformly charging a surface of said
photoconductive ~~drum~~ element, and a developing device disposed in said cartridge case and
configured to feed toner to said surface of said photoconductive element;

an optical scanning unit configured to optically scan the surface of said
photoconductive element charged by said charging device; and

an image transferring device configured to transfer the toner from the surface of said
photoconductive element to a recording medium;

said charging device comprising:

a charge roller adjoining or contacting the surface of said photoconductive element;

a DC voltage source configured to output a DC voltage;

an AC voltage source configured to output an AC voltage;

voltage applying means for superposing the DC voltage and the AC voltage and
applying a resulting superposed voltage to said charge roller; and

waveform control means for causing said AC voltage source to generate the AC voltage having a waveform pattern of ~~particular~~ at least one of white noise or pink noise and a frequency lying in a preselected range.

Claim 19 (Currently Amended): An image forming apparatus comprising:

a photoconductive element;

a charging device configured to establish a potential difference between said charging device and said photoconductive element for thereby uniformly charging a surface of said photoconductive element, said charging device comprising a charge roller adjoining or contacting a surface of said photoconductive element, a DC voltage source configured to output a DC voltage, an AC voltage source configured to output an AC voltage, voltage applying means for superposing said DC voltage and said AC voltage and applying a resulting superposed voltage to said charge roller, and waveform control means for causing said AC voltage source to generate said AC voltage having a waveform pattern of ~~particular~~ at least one of white noise or pink noise and a frequency lying in a preselected range;

an optical scanning device configured to optically scan the surface of said photoconductive element charged by said charging device;

a developing device configured to transfer toner to the surface of said photoconductive element scanned by said optical scanning device; and

an image transferring device configured to transfer the toner from the surface of said photoconductive element to a recording medium[[:]].

Claim 20 (Currently Amended): A copier comprising:

an image reading device configured to read a document image; and

an image forming apparatus configured to form an image on a recording medium in accordance with image data output from said image reading device;

said image forming apparatus comprising:

a process cartridge comprising a photoconductive element, a cartridge case by which said photoconductive element is rotatably supported, a charging device disposed in said cartridge case and configured to establish a potential difference between said charging device and said photoconductive element for thereby uniformly charging a surface of said photoconductive ~~drum~~ element, and a developing device disposed in said cartridge case and configured to feed toner to said surface of said photoconductive element;

an optical scanning unit configured to optically scan the surface of said photoconductive element charged by said charging device; and

an image transferring device configured to transfer the toner from the surface of said photoconductive element to a recording medium;

said charging device comprising:

a charge roller adjoining or contacting the surface of said photoconductive element;

a DC voltage source configured to output a DC voltage;

an AC voltage source configured to output an AC voltage;

voltage applying means for superposing the DC voltage and the AC voltage and applying a resulting superposed voltage to said charge roller; and

waveform control means for causing said AC voltage source to generate the AC voltage having a waveform pattern of ~~particular~~ at least one of white noise or pink noise and a frequency lying in a preselected range.

Claim 21 (Currently Amended): A copier comprising:

an image reading device configured to read a document image; and

an image forming apparatus configured to form an image on a recording medium in accordance with image data output from said image reading device;

a photoconductive element;

a charging device configured to establish a potential difference between said charging device and said photoconductive element for thereby uniformly charging a surface of said photoconductive element, said charging device comprising a charge roller adjoining or contacting a surface of said photoconductive element, a DC voltage source configured to output a DC voltage, an AC voltage source configured to output an AC voltage, voltage applying means for superposing said DC voltage and said AC voltage and applying a resulting superposed voltage to said charge roller, and waveform control means for causing said AC voltage source to generate said AC voltage having a waveform pattern of ~~particular~~ at least one of white noise or pink noise and a frequency lying in a preselected range;

an optical scanning device configured to optically scan the surface of said photoconductive element charged by said charging device;

a developing device configured to transfer toner to the surface of said photoconductive element scanned by said optical scanning device; and

an image transferring device configured to transfer the toner from the surface of said photoconductive element to a recording medium.